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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,098	11/14/2003	Yao-Chang Lin	930074-2019	9526

20999 7590 01/26/2007  
FROMMER LAWRENCE & HAUG  
745 FIFTH AVENUE- 10TH FL.  
NEW YORK, NY 10151

EXAMINER
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DUONG, THANH P

ART UNIT	PAPER NUMBER
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1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/714,098

Applicant(s)

LIN, YAO-CHANG

Examiner

Tom P. Duong

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration..
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-2, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Mercer (3,572,264). Regarding claims 1 and 5, Mercer discloses a cleaning apparatus for removing impurities from exhaust gas (Figs. 1-3), comprising: a gas treating pipe including an upper section (11), a lower section (21), and an intermediate section (19) extending from said lower section (21) to said upper section (11), said intermediate section (19) having a plurality of bent parts (Fig. 1), said upper section having a gas exit (27); a liquid supplier (17) fluidly communicated with said upper section (11) of said gas treating pipe below said gas exit; an exhaust gas pipe (10) connected to said lower section of said gas treating pipe; and a liquid outlet (28) provided at said lower section of said gas treating pipe. Regarding claim 2, Mercer '264 discloses the gas treating pipe is formed in a zig-zag shape (Fig. 1). Regarding claim 7, Mercer '264 discloses a liquid recirculation member in connection with the gas treating pipe and a pump (Figure 2).

Note, instant claims structurally read on the apparatus of Mercer '264.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCorvey (5,121,602). Regarding claim 1, McCorvey '602 discloses a cleaning apparatus for removing impurities from exhaust gas (Figs. 1-3), comprising: a gas treating pipe (18, 16, 28) including an upper section (16, 28), a lower section (18), and an intermediate section (26) extending from said lower section (18) to said upper section (16,28), said intermediate section (26) having a bent part (26), said upper section having a gas exit (15); a liquid supplier (24); an exhaust gas pipe (18) connected to said lower section of said gas treating pipe; and a liquid outlet (47) provided at said lower section of said gas treating pipe. McCorvey discloses the features of the claimed invention except the arrangement of the liquid supplied line (24) is located at the upper section of the gas treating pipe; however, it would have been an obvious matter of design choice to one having ordinary skill in the art to rearrange the supplied liquid line of McCorvey device in the upper section as a matter of intended use since shifting the location of the supplied liquid line would no have modified the operation of the device. See *In re Japikse*. With respect to a plurality of bend parts in the intermediate section, McCorvey discloses a

bent part (26) in the intermediate section, it would have been an obvious matter of design choice to one having ordinary skill in the art to duplicate additional bent parts to increase the contact time between the exhaust gas and the scrubbing liquid to further enhance the exhaust gas treatment, since it has been held by the court that mere duplication of parts is within the level of ordinary skill in the art. See *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mercer '264. Regarding claim 3, Mercer '264 fails to show the gas treating pipe is formed as a coil; however, it would have been an obvious matter of design choice to one having ordinary skill in the art to provide the exhaust gas pipe in coiled shape since it has been held by the court that a mere change in shape is within the level of ordinary skill in the art. See *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

4. Claims 4 and is rejected under 35 U.S.C. 103(a) as being unpatentable over Mercer '264 in view of McCorvey (5,121,602). Regarding claim 4, Mercer disclose the a filter medium 23 is disposed on the outlet side of the gas treating pipe and a liquid outlet (28) but fails to disclose a valve for controlling the fluid flow through the liquid outlet. It is conventional to provide a control valve at the liquid outlet and it would have been obvious to do so here to provide a control means to purge or bleed a portion of the supplied liquid from the gas treating pipe.

5. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mercer '264 in view of Liu (5,453,107) and/or Olson (5,034,038). Regarding claim 6, Mercer '264 essentially discloses the features of the claimed invention except a bubble forming section having a plurality of pores for forming the exhaust gas into bubbles in said gas treating pipe. Liu '107 teaches it is conventional to provide a tube with inner end section with a series of perforations or apertures 20 to increase the heat transfer between the gas and the scrubbing liquid and facilitate in mixing the gas with the scrubbing liquid. Likewise, Olson teaches the conventionality of providing a suction pipe section 12A with a series of openings 12B to enhance the distribution of air/particulate mixture through liquid and thereby, create less turbulence, as opposed to a single inlet 12'. Thus, it would have been obvious in view of Liu '107 and/or Olson '038 to one having ordinary skill in the art to incorporate the bubble forming section as taught by Liu '107 and/or Olson in the device of Mercer '264 to increase heat transfer and/or gas distribution in the scrubbing liquid. Regarding claim 8, Mercer '264 essentially discloses the features of the claimed invention except a liquid level detector in the cleaning system. Liu '107 teaches the conventionality of providing a float valve to control the water level in the filtration apparatus (Col. 4, lines 60-65). Likewise, Olson '038 also teaches the conventionality of providing a liquid level sensor (11,15) to detect the scrubbing liquid level in the separator. Thus, it would have been obvious in view of Liu and/or Olson to one having ordinary skill in the art to modify the device Mercer '264 with a liquid level detector as taught by Liu and/or Olson to detect the liquid level in the cleaning system.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom P. Duong whose telephone number is (571) 272-2794. The examiner can normally be reached on 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tom Duong  
January 19, 2007

TD



Glenn Caldarola  
Supervisory Patent Examiner  
Technology Center 1700